MURZIN, L. G. and A. P. FEL'DMAN

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Stakhanov methods of saving fuel.

MH

DLC: TJ607.M8 1945

80; Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

MURZIN, L. G. and B. N. DESHKIN

Ekonomiia topliva na parovozakh. 4 perer i dopoin izd. Moskva, Transzheldorizdat, 1948. 225 p. illus.

Saving locomotive fuel.

DLC: TJ648.M8 1948

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

MURZIN, L. G

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Misc
75

Tekhnologiya Topliva Vody i Smazki (Technology of Fuels, Water and Lubricants) Moskva, Transzheldorizdat, 1949.
182 p.
Microfilm

MURZIN, Leonid Gavrilovich; GONCHAROV, Viktor Mikhaylovich; GONCHAROV, S.F., kand.tekhn.nauk, red.; VERINA, G.P., tekhn.red.

[Fuel, oil, water; for diesel locomotives] Toplivo, smazka, voda; dlia teplovozov. Moskva, Gos.transp.zhel-dor.izd-vo, 1959. 127 p. (MIRA 12:9)
(Diesel locomotives--Maintenance and repair)

GONCHAROV, Viktor Mikhaylovich; MURZIN, Leonid Gavrilovich; MIRONOV, M.I., inzh., retsenzent; BLIDCHENKO, I.F., inzh., retsenzent; MOSKVIN, G.N., inzh., retsenzent; SOBAKIN, V.V., inzh., red.; USENKO, L.D., tekhn. red.

[Fuel, lubricants, and water] Toplivo, smazka, voda. Izd.2., perer. i dop. Moskva, Vses.izdatel'sko-poligr.ob"edinenie M-va putei soobshcheniia, 1961. 158 p. (MIRA 14:12)
(Railroads--Equipment and supplies)

MURZIN, L.G.

Economizing of diesel fuel is the most important problem. Elek.i tepl.tiaga 6 no.5:16 My '62. (MIRA 15:6)

1. Nachal'nik otdela teplotekhniki Glavnogo upravleniya lokomotivnogo khozyaystva Ministerstva putey soobshcheniya.
(Diesel fuels)

POYDO, A. A., prof.; TOLKACHEV, V. P., inzh.; MURZIN, L. G.

Replies to the inquiries of our readers. Elek. i tepl. tiaga 6 no.9:41 S '62. (MIRA 15:10)

1. Nachal'nik otdela teplotekhniki Glavnogo upravleniya lokomotivnogo khozyaystva Ministerstva putey soobshcheniya.

(Diesel locomotives)

MURZIN, L.G.

A school of progressive experience in the economy of diesel fuel. Elek. i tepl. tiaga 6 no.10:14 O '62. (MIRA 15:11)

1. Nachal'nik otdela teplotekhniki Glavnogo upravleniya lokomotivnogo khozyaystva Ministerstva putey soobshcheniya.
(Diesel fuels)

MURZIN, L.G.

The work of all workers should be raised to the level of the leading collectives. Elek. i tepl. tiaga 7 no.3:1-3 Mr '63. (MIRA 16:6)

1. Nachal'nik otdela teplotekhniki Glavnogo upravleniya lokomotivnogo khozyaystva Ministerstva putey soobshcheniya. (Railroads—Employees)

MURZIN, L.G.

Use diesel fuel economically. Elek. i tepl.tiaga 6 no.8:1-3 Ag '62. (MIRA 17:3)

1. Nachal'nik otdela teplotekhniki Glavnogo upravleniya lokomotivnogo khozyaystva Ministerstva putey soobshcheniya.

L'VOV, L.A.; PAZUKHIN, V.D.; MURZIN, L.G., red.; VOROB'YEVA, L.V., tekhn. red.

[Fuel economy on steam locomotives; practice of locomotive engineer D.I.Chvyrin's brigade at the Buy Depot, Northern Railroad] Ekonomiia topliva na parovozakh; opyt brigady mashinista depo Bui Severnoi dorogi D.I.Chvyrina. Moskva, Transzheldorizdat, 1963. 25 p. (MIRA 16:12)
(Locomotives--Fuel consumption)

MURZIN, L.G., inzh.; SAVINSKIY, V.I., inzh.

Economical use of fuel and electric power. Zhel.dor.transp. 45 no.10:30-33 O '63. (MIRA 16:11)

MURZIN, L.G.; SIDOROV, N.I., red.; AYBASHEVA, T.V., red.

[Electric power economy in electric railroad rolling stock] Ekonomiia elektricheskoi energii na elektropodvizhnom sostave. Moskva, Transport, 1964. 58 p. (MIRA 17:10)

1. Nachal'nik otdela teplotekhniki Glavnogo upravleniya lokomotivnogo khozyaystva Ministerstva putey soobshcheniya (for Murzin).

MURZIN, L.M

4762. DAMAGE TO HEATING SURFACES OF HIGH PRESSURE BOILERS. Danilenko, P.A. and Murzin, L.M. (Energetik, (Ivz' Energ, Moscow), May 1956, vol. 4, 13, 14). Causes and remedies are set out with emphasis on erosion and fouling caused by long cleaning rods becoming fixed among the tubes where they remain until extracted after cooling, and by accumulation of sludge consisting of scale, iron oxides, and organic compounds, in the vertical headers. C.S.A.

2

DENISENKO, P.A.; MURZIN, L.M.; SOTNIKOV, Ya.I., red.; GUDKOV, A.V., tekhn.red.

[Operations of the heat and electric power plant of the Gorkiy Automobile Plant] Iz opyta raboty TETs Gor'kovskogo avtomobil'nogo zavoda. Moskva, TsBTI avtomobil'noi promyshl., 1958. 40 p. (MIRA 12:3)

(Gorkiy--Steam power plants)

MURZIN, L.P.

SHPAK, I.S.; MURZIN, L.P.

Squall in the region of the Tsimlyansk Reservoir, June 25, 1956.
Meteor.i gidrol. no.4:28-30 Ap '57. (MLRA 10:5)
(Tsimlyansk Reservoir--Storm, 1956)

YEVDOKIMOV, I.I.; ALEKSEYEV, V.D.; ASHIKHMIN, A.K.; BAYEV, N.V.; BEGLAR'YAN, P.A.; BYCHKOV, I.A.; VESLOVA, Ye.T.; VYZHEKHOVSKAYA, M.F.; GUBETSKIY, S.A.; DEMIDOV, I.M.; YESIPOV, Ye.P.; ZHUKOV, V.D.; ZELINSKIY, M.G.; ZOL'NIKOV, F.T.; ZOLOTOVA, L.I.; KIVIN, A.N.; KOMARNITSKIY, Yu.A.; KONSTANTINOV, A.N.; KUL'CHITSKAYA, A.K.; MAKSIMENKO, I.I.; MELENT'YEV, A.A.; MOROZOV, I.G.; MURZINOV, M.I.; OZEMBLOVSKIY, Ch.S.; OSTRYAKOV, K.I.; PANINA, A.A.; PAVLOVSKIY, V.V.; PERMINOV, A.S.; PERSHIN, B.F.; PRONIN, S.F.; PSHENNYY, A.I.; POKROVSKIY, M.I.; RASPONOMAREV, Ye.A.; SEMIN, I.N.; SKLYAROV, Yu.N.; TIBABSHEV, A.I.; FARBEROV, Ya.D.; FEDOROV, G.P.; SHUL'GIN, Ya.S.; YAKIMOV, I.A.; VERINA, G.P., tekhn.red.

[Labor feats of railway workers; stories about the innovators] Trudovye podvigi zheleznodorozhnikov; rasskazy o novatorakh. Moskva, Gos.transp.zhel-dor.izd-vo, 1959. 267 p. (MIRA 12:9)
(Railroads) (Socialist competition)

1. MURZIN, M. K. Eng.

2. USSR (600)

4. Bricks

7. Improved types of containers for bricks. Biul. stroi. tekh. 9 no. 19, 1952.

9. Monthly List of Russian Accessions, Library of Congress, January, 1953. Unclassified.

MURZIN, M.K., inzhener.

Mobile crushing and sorting units and plants. Opyt stroi.no.2:21-30 '55. (MLRA 10:2)

(United States--Crushing machinery)

MURZIN, M.K., inzh.

Machinery for stabilizing naturally bedded grounds using cement.
Biul. stroi. tekh. 12 no.5:33-36 My '55. (MIRA 11:12)

1.TSentral'nyy institut informatsii po stroitel'stvu.
(Great Britain--Soil stabilization)
(Great Britain--Road machinery)

MURZIN, M.K., inzhener.

Work practice of the trust No.20 of the Ministry of Construction of the U.S.S.R. Opyt stroi. no.5:27-41 '56. (MLRA 10:4)
(Concrete slabs)

MURZIN, M.K., inzhener.

Bunker-feeder for delivering mortar through window openings.
Biul.stroi.tekh.13 no.3:23 Mr '56. (MLRA 9:7)

1.TsIIMS.
(Mortar) (Conveying machinery)

MURZIN, M.K., inzh.; CHARTORIYSKAYA, P.G., inzh.

Excavating sand and gravel from under water in the U.S.A.
Opyt. stroi. no.9:53-65 '57. (MIRA 11:6)
(United States--Sand and gravel plants)

MURZIN, N., inzh.

Get ready in due time to receive the new grain. Muk.-elev. prom. 25 no.9:30 S '59. (MIRA 12:12)

1. Pavlodarskoye oblastnoye upravleniye khleboproduktov.
(Pavlodar Province--Grain elevators)

AKOP'YAN, G.; MURZIN, N.

Letters to the editor. Muk.-elev. prom. 28 no.9:29 S '62. (MIRA 15:10)

1. Zaveduyshchiy laboratoriyey Gosudarstvennoy khlebnoy inspektsii Glavnogo upravleniya khleboproduktov Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktor Azerbaydzhanskoy SSR (for Akop'yan). 2. Starshiy inzh. Pavlodarskogo oblastnogo upravleniya proizvodstva i zagotovok sel'skokhozyaystvennykh produktov (for Murzin).

(Grain)

MURZIN, O.M.

PHASE I BOOK EXPLOITATION SOV/4870

Arsel'dov, Ye. M., T.T. Konta, V.V. Kalechyts', O.I. Mikhnenko, Ya. M. Koytin, O.M. Murzin, D.M. Savych, V.D. Tomashchuk, A.M. Shvans'kyy

Khimichna promyslovist' Ukrayiny (Chemical Industry of the Ukraine) [Kyyiv, Derzh. vyd-vo tekhn. lit-ry URSR] 1960. 128 p. 2,000 copies printed. (Series: Do dekady ukrayins'koyi literatury ta mystetstva v Moskvi)

Ed.: A.I. Bakvyshnykov; Ed. (Inside Book): L. Raytburd; Tech. Ed.: L. Horkavenko.

PURPOSE: This book is intended for the general reader interested in the development of the chemical industry of the Ukraine.

COVERAGE: The authors discuss the recent development of several important branches of the Ukrainian chemical industry. The text is illustrated with many photographs of equipment and installations. No personalities are mentioned. There are no references.

Card 1/3

LEDNEV, K., MURZIN, P.

Combines (Agricultural Machinery)

Harvesting silage crops with a remodeled combine. MTS 12 no. 7 1952.

9. Monthly List of Russian Accessions, Library of Congress, September 1952 1666, Uncl.

MURZIN, S. inzh.po ratsionalizatsii i izobretatel'stvu

Mounted sectional disconnector of trolley wires. Bezop.truda v prom. 5 no.11:33 N '61. (MIRA 14:11)

1. Shakhta "Polysayevskaya-2", Kemerovskaya obl., g. Leninsk-Kuznetskiy.

(Electric switchgears)

24(7) SOV/48-23-9-13/57

AUTHORS: Abramson, I. S., Murzin, S. N., Slavnyy, V. A.

TITLE: On the Influence of "Third" Elements in the Application of Undecomposed Light as Internal Standard

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 9, pp 1081-1083 (USSR)

ABSTRACT: In the application of this method the reproducibility (vosproizvodimost') of photometrical measurements is not bad. In the case of the experiments described, the chromium- and manganese content in steels was determined, for which purpose the GEU-1 generator was used. Moreover, the samples were selected in such a manner that the influence exercised by the elements was sufficiently great. Chromium was determined by means of standards of series Nr 6 of the laboratoriya standartnykh obraztsov (Laboratory for Standard Samples), and for the determination of manganese standards of series Nr 6 and Nr 28 were used. The wave length of the pairs of lines investigated is given, and results are shown by table 1. The influence exercised by "third" elements was found to exceed the measuring error of measurements, in which case the samples were used as cathode. No dependence on amperage was found. When undecomposed light was used, the influence exercised by "third" elements is not greater, and in some cases it is even smaller by 1.5 to double its amount

Card 1/2

On the Influence of "Third" Elements in the Application of Undecomposed Light as Internal Standard

SOV/48-23-9-13/57

than if the lines of the base material are used. Further, experiments were carried out for the purpose of reducing the influence exercised by "third" elements. A special device was built for this purpose, in which rotating electrodes were used. This, however, produced the opposite effect: the influence was somewhat intensified. This is explained by a stronger structural influence caused by the lower degree of heating of the sample. Also the method of strong pulse discharges according to Ye. I. Vorontsov was investigated. In this case the surface of the sample was coated with a thin layer of machine oil in order to warrant a local discharge. A reduction of the influence was found to occur. However, owing to the strong background, difficulties arise in photoelectrical measurement. Finally, it is found that the reduction of the influence of "third" elements cannot be attained by the use of one or the other internal standard, analytical lines, the nature of the discharge, the shape of the electrodes or the like, but that new light sources must, in principle, be found. There are 1 table and 8 references, 5 of which are Soviet.

ASSOCIATION: Laboratoriya Komissii po spektroskopii Akademii nauk SSSR (Laboratory of the Commission for Spectroscopy of the Academy of Sciences, USSR)

Card 2/2

ABRAMSON, I.S., MURZIN, S.N., SLAVNYY, V.A.

Determination of the high content of copper in stannous and plumbous brasses in a PES-1 unit. Zav.lab. 26 no.5:574-575 '60. (MIRA 13:7)

1. Laboratoriya Komissii po spektroskopii pri Akademii nauk SSSR.
(Brass--Analysis) (Copper--Spectra)

S/032/62/028/007/010/011
B104/B102

AUTHORS: Abramson, I. S., Kononov, E. Ya., Mogilevskiy, A. N., Murzin, S. N., and Slavnyy, V. A.

TITLE: A photoelectric device for precisely recording Raman spectra of light

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 7, 1962, 875 - 877

TEXT: A double-beam device was designed, in which the beams are modulated with one frequency, the reference beam and the scattered beam being focused onto a light pickup alternately. The switch-over frequency (23 per sec) is such that the contours of spectral lines can be recorded with great accuracy. Behind the modulator (Fig. 1) the light beam is focused onto a spectral device (4) and thence onto a photomultiplier. The reference beam is led past the spectral apparatus, passed through a blue filter (3), and finally fed to the photomultiplier.(5). The signals of the scattered light and that of the reference beam are amplified and fed to a ratiometer which works on the principle of an ЭПП-09 (EPP-09) potentiometer. An automatic voltage divider controls the sensitivity

Card 1/2

A photoelectric device for...

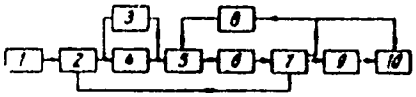
S/032/62/028/007/010/011
B104/B102

required for Raman lines of different intensities. The Raman line frequency is measured with a Fabry-Perot standard. There are 2 figures.

ASSOCIATION: Komissiya po spektroskopii Akademii nauk SSSR (Commission on Spectroscopy of the Academy of Sciences USSR)

Fig. 1.. Block diagram of device.
Legend: (1) source; (2) modulator; (3) light filter; (4) spectral device; (5) photomultiplier; (6) amplifier; (7) synchronous detector; (8) high-voltage source; (9) automatic voltage divider; (10) ratiometer.

Fig. 1



Card 2/2

MURZIN, T., prepodavatel' (Zernograd); KALASHNIKOV, A., prepodavatel'

Homemade visual aids. Za rul. 21 no.4:28 Ap '63. (MIRA 16:5)

1. Novooskol'skiy avtomotoklub Dobrovol'nogo obshchestva sodeystviya armii, aviatsii i flotu, Belgorodskoy obl. (for Kalashnikov).
(Automobile drivers--Education and training)

MURZIN, V. A.

20725. Maysin, S.R. i Murzin, V. A. Udel'nyye normy potrebleniya elektroenergii na shakhtakh krivbassa. Gornyy zhurnal, 1949, No. 7, s. 26-28

SO: LETOPIS ZHURNAL STATEY - Vol. 28, Moskva, 1949

MURZIN, K.A.

SHTOKMAN, I.G., dotsent, kandidat tekhnicheskikh nauk; MURZIN, V.A., kandidat tekhnicheskikh nauk; POLUYANSKIY, S.A., inzhener.

Experimental determination of the propagation speed of resiliency waves in conveyor chains. Vest.mash. 34 no.2:26-27 F '54. (MLRA 7:3)

1. Dnepropetrovskiy gornyy institut im. Artema (for Shtokman).
2. Institut gornogo dela Akademii nauk URRS (for Murzin and Poluyanskiy). (Conveying machinery)

MURZIN, V.A.; DVOYNIN, A.I.

Experimental investigation of dynamic forces in the chains of scraper conveyers and methods for reducing these forces. Trudy Sem. po teor.mash. 15 no.59:5-19 '55. (MLRA 9:6)
(Chains) (Conveying machinery)

MURZIN, V. A.

VESTNIK MASHINOSTROYENIYA, (ENGINEERING JOURNAL)
Vol 35, No. 7, July, 1955

On the existence of dynamic loads in the chains of conveyor installations. Report on the visualization and causes of impact and fluctuating loads, using strain gauges and oscillographic recording contains critical comments on the views expressed in a paper by V. A. Kruzhkov on the same subject (same journal, 1953, No. 10).
By I. G. Shtokman, V. A. Murzin and S. A. Poluyanskyi ... 16

3

RENGEVICH, A.A., dotsent, kand.tekhn.nauk; MURZIN, V.A., dotsent, kand. tekhn.nauk

Design and construction of an electromagnetic rail brake for mine electric locomotives. Vop. rud. transp. no.2:274-301 1957. (MIRA 14:4)

1. Dnepropetrovskiy gornyy institut.
(Mine railroads--Brakes)

SOV/112-59-5-9508

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 5, p 150 (USSR)

AUTHOR: Murzin, V. A., and Vereskunov, N. G.

TITLE: Methods and Equipment for Experimental Investigation of a Crankshaft-Piston Pneumatic Motor

PERIODICAL: V sb.: Vopr. rudnichn. transp. Nr 2, M., Ugletekhizdat, 1957, pp 355-374

ABSTRACT: The most important characteristics of a pneumatic motor are: indicator diagrams, mechanical characteristics, general and specific air consumption depending on the angular velocity of the motor, and the temperature-cycle curve. Availability of the above data permits detecting design defects and enables one to suggest a modernization. The methods of experimental investigation suggested here are based on electrical methods for measuring nonelectrical quantities. An electron or loop oscillograph is used as a recording instrument. Recording of a sole cycle on the screen can be

Card 1/3

Methods and Equipment for Experimental Investigation of a Crankshaft-Piston . . . .

realized by an automatic beam-brightness control. The primary-element signals are amplified by DC amplifiers. Simultaneous signals from two primary elements yield the motor indicator diagram for a given mode of operation. Simultaneous signals from the torque and angular-velocity primary elements permit obtaining the motor mechanical characteristic on the oscillographic screen. A characteristic of the total air consumption plotted against the motor rpm can also be produced on the screen. A consumption curve plotted against the motor rpm can represent the motor operation economy. A cyclic curve presenting the air temperature as a function of the piston position in the cylinder can be recorded by an electronic oscillograph; the latter is fed from a temperature primary element — a microthermocouple built in the cylinder top — and a piston-motion primary element. A long-afterglow picture tube is used for convenience of observation. Strain gauges, potentiometric elements, tachometer-generator elements and others are described. Power-

Methods and Equipment for Experimental Investigation of a Crankshaft-Piston . . . .

supply packs are of conventional design. The time-marking generator is a blocking oscillator feeding negative pulses to the picture-tube cathode. Pulse frequency between 50 and 500 pulses per sec can be adjusted by a switch. The blocking oscillator can be switched either manually or by a beam-blanking unit. The oscillograph deflecting system is designed for special DC amplifiers (three push-pull direct-coupled stages). The amplifiers can be fed from strain gauges, while the output stage can drive an electronic or a loop oscillograph. The anode voltage is turned on after the amplifier cathodes have been heated. The authors present experimentally determined characteristics of a type MP-5 motor. Eleven illustrations. Bibliography: 6 items.

V.A.B.

MURZIN, V.A., kand. tekhn. nauk; BAKHOLDIN, B.A., inzh.

Methods and equipment for the experimental investigation of pneumatic impact machines. Izv. vys. ucheb. zav.; gor. zhur. no.12:87-95 '58. (MIRA 12:8)

1.Dnepropetrovskiy gornyy institut (for Murzin). 2.Institut gornogo dela AN USSR (for Bakholdin).
(Mining machinery--Testing)
(Pneumatic machinery--Testing)

MURZIN, V.A., inzh.

Effect of errors in machining and the quality of billets on the dynamic balancing of crankshafts. Trakt. i sel'khozmash. no.1: 40-42 Ja '59. (MIRA 12:1)
(Cranks and crankshafts) (Balancing of machinery)

MURZIN, V.A., kand.tekhn.nauk; BILICHENKO, N.Ya., kand.tekhn.nauk; POLUYANSKIY, S.A., inzh.

Research on conveyors in the mines of the Krivoy Rog Basin. Vop. rud. transp. no.4:200-209 '60. (MIRA 14:3)

1. Dnepropetrovskiy gornyy intitut im. Artema (for Murzin, Bilichenko).
2. Institut gornogo dela AN USSR (for Poluyanskiy).
(Krivoy Rog Basin--Conveying machinery)

TUPITSYN, G.M., kand.tekhn.nauk [deceased]; MURZIN, V.A., kand.tekhn.nauk; TSEYTLIN, Yu.A., kand.tekhn.nauk

Results of experimental studies of the performance of OK-500-92 turbocompressors. Ugol' Ukr. 5 no.4:20-21 Ap '61. (MIRA 14:4)

1. Dnepropetrovskiy gornyy institut.
(Coal mines and mining--Equipment and supplies)
(Compressors)

MURZIN, Vladimir Alekseyevich; TSEYTLIN, Yuriy Anatol'yevich; D'YAKOVA, G.B., red. izd-va; PRONINA, N.D., tekhn. red.

[Turbocompressors in the mining industry of the U.S.S.R.] Turbokompressory v gornoi promyshlennosti SSSR. Moskva, Gosgortekhizdat, 1962. 70 p. (MIRA 15:10)
(Mining engineering--Equipment and supplies)
(Compressors)

MURZIN, V.A., kand.tekhn.nauk, dotsent; TSEYTLIN, Yu.A., kand.tekhn. nauk

Simplified conversion of turbocompressor characteristics during industrial tests. Izv.vys.ucheb.zav.; energ. 5 no.11:99-104 '62. (MIRA 15:12)

1. Dnepropetrovskiy ordena Trudovgo Krasnogo Znameni gornyy institut imeni Artema. Predstavlena kafedroy gornoy mekhaniki.
(Turbomachines) (Compressors)

MURZIN, V.A.; TSEYTLIN, Yu.A.; RYBIN, A.I.; MINAYEV, V.D.; PROTASOV, K.Ye.

Concerning A.I.Karabin's article "Is a terminal compressor cooler necessary?" Prom. energ. 17 no.9:25-27 S '62. (MIRA 15:8)

1. Dnepropetrovskiy gornyy institut (for Murzin, TSeytlin). 2. Permskiy politekhnicheskiy institut (for Rybin). 3. Rostovskiy filial Gosudarstvennogo instituta proyektirovaniya predpriyatiy po proizvodstvu plasticheskikh mass i poluproduktov (for Minayev, Protasov).
(Karabin, A.I.) (Compressors--Cooling)

MURZIN, V.A., dotsent; TSEYTLIN, Yu.A., kand. tekhn. nauk

Setup for industrial tests of turbine compressors operating in mines. Izv. vys. ucheb. zav.; gor. zhur. no.5:152-157 '61. (MIRA 16:7)

1. Dnepropetrovskiy ordena Trudovogo Krasnogo Znameni gornyy institut imeni Artema. Rekomendovana kafedroy gornoy mekhaniki.
(Air compressors—Testing)

MURZIN, V.A., kand. tekhn. nauk, dotsent; TSEYTLIN, Yu.A., kand. tekhn. nauk, dotsent; KUTOVOY, L.N.; FAYBISOVICH, I.L., dotsent

Area of use of pneumatic power in coal mines. Ugol' 38 no.9:10-12 S '63. (MIRA 16:11)

1. Dnepropetrovskiy gornyy institut (for Murzin, TSeytlin).
2. Glavnyy energetik Dnepropetrovskogo gosudarstvennogo instituta po proyektirovaniyu shakhtnykh ustanovok (for Kutovoy).

MURZIN, V.A.; TSEYTLIN, Yu.A.

Spontaneous ignition of rubber packing in mine pneumatic networks. Bezop. truda v prom. 8 no.11:14-15 N '64. (MIRA 18:2)

1. Dnepropetrovskiy gornyy institut.

MURZIN, Vladimir Alekseyevich; TSEYTLIN, Yuriy Anatol'yevich

[Pneumatic equipment in mines] Rudnichnye pnevmaticheskie ustanovki. Moskva, Nedra, 1965. 315 p.
(MIRA 18:5)

MURZIN, V.A., dotsent

Efficiency of using the effect of a flow of compressed air in **pneumatic piston** engines. Izv. vys. ucheb. zav.; gor. zhur. 8 no.7:155-160 '65. (MIRA 18:9)

1. Dnepropetrovskiy ordena Trudovogo Krasnogo Znameni gornyy institut imeni Artema. Rekomendovana kafedroy gornoy mekhaniki.

MURZIN, V. B.

A STUDY OF THE INTERACTION OF NUCLEOUS WITH ENERGY (I - 5) x 10^{11} ev WITH LIGHT ATOMIC NUCLEI

N.L. Grigorev, V.V. Guseva, N.A. Dobrotin, K.A. Kotelnikov, V.B. Murzin, S.V. Ryabikov, S.A. Slavatinskiy

1. The interaction of cosmic-ray nucleons with atomic nuclei has been investigated at 3860 m above sea level (Pamire Station of the Physics Institute, Academy of Sciences, U.S.S.R.) with the aid of an arrangement that permits of a comprehensive study of an individual act of nucear interaction.
2. The arrangement consisted of two cloud chambers with a target of a light substance (LiH in the main series of experiments) interposed between them. In this target the interactions under study were generated. The bottom cloud chamber was placed in a 6500-oersted magnetic field, which enabled us to measure directly the pulses of secondary particles. Under the chambers was a special device ("ionization calorimeter") made up of 120 ionization chambers arranged in 6 trays with filters between them. This device made it possible (from the total amount of energy generated) to determine the energy of the particle that produced the interaction being studied.

Report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959

KURBATSKIY, I.L.; USTINOV, A.I.; CHERNYY, A.A.; MURZIN, V.G.; SOSNOVSKIY, Ye.D.; PAVLENKO, N.S.; KHILYUK, A.S.; RUSALKIN, V.A.

Making castings of high strength cast iron. Lit.proizv. no.9:6-9 S '62. (MIRA 15:11)

(Iron founding)

KURBATSKIY, I.L., inzh.; PETROV, I.P., inzh.; USTINOV, A.I., inzh.;
CHERNYY, A.A., inzh.; MURZIN, V.G., inzh.; ZHITOMIRSKIY, M.B., inzh.

Manufacture of large compressor parts from extra-strong cast iron.
Khim.mashinostr. no.5:36-37 S-O '63. (MIRA 16:10)

S/076/60/034/009/028/041XX
B020/B056

AUTHORS: Rabinovich, I. B., Murzin, V. I., Zhilkin, L. S.

TITLE: The Isotopic Effect in the Viscosity of Deutero-glycerin and Ethylene Deutero-glycol

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 9, pp. 1973 - 1975

TEXT: The authors wanted to clarify the relation between the isotopic difference in the viscosity and the association by means of hydrogen binding, and for this purpose they investigated the effect produced by the substitution of hydrogen by deuterium in the hydroxyl groups of glycerin and ethylene glycol upon the viscosity of these compounds. Deuterium was introduced into the alcohols by repeated exchange with heavy water under vacuum evaporation. The deuterium content, the density (ρ_4^{20}), and the refractive index (n_D^{20}) of the isotope analogues are given in Table 1. The viscosity was determined with an accuracy of about 0.2 %. As may be seen from Table 2, the isotopic effect in the viscosity for

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The Isotopic Effect in the Viscosity of Deutero-glycerin and Ethylene Deutero-glycol

S/076/60/034/009/028/041XX
B020/B056

deutero-glycerin equals 16.5 %, and for ethylene deutero-glycol 8.3 % with a molecular weight difference of 3.2 % in both cases. By the substitution of deuterium for hydrogen in the hydroxyl groups of glycerin, the viscosity is increased within the temperature range of from 20 to 90° by from 16.5 to 9.0 %, whereas the rise in the case of ethylene-glycol within the temperature range of from 10 to 90° amounts to 9.0 % to 2.0 %. The great isotopic effect in the viscosity of the associated liquids investigated is explained by the fact that it depends exponentially on the isotopic difference of the activation energy of the viscous flow, which, in turn, is exponentially related to the isotope difference of the zero energy of vibrations, which correspond to the hydrogen bond. The authors thank Academician of the AS UkrSSR, A. I. Brodskiy and Professor A. Z. Golik for discussing the results of the present paper. There are 2 tables and 10 references: 7 Soviet, 3 US, and 1 Belgian.

ASSOCIATION: Gor'kovskiy gosudarstvennyy universitet im. N. I. Lobachevskogo (Gor'kiy State University imeni N. I. Lobachevskiy)

SUBMITTED: December 16, 1958

Card 2/2

MURZIN, V.I.; NIKIFOROVA, M.R. (Moscow)

Preparation of high purity ethane. Zhur. fiz. khim. 39 no.3:789-791 Mr '65. (MIRA 18:7)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.

MURZIN, V.K.

Using infrared gas burners in poultry farming. Gaz. prom. 10 no.8: 22-25 '65. (MIRA 18:9)

AUTHORS: Malyshev, V. I., Murzin, V. N. SOV/48-22-9-23/43

TITLE: Investigations of the Hydrogen Bond in Glycols and Catechols (Issledovaniya vodorodnoy svyazi v glikolyakh i katekholakh)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 9, pp 1107 - 1108 (USSR)

ABSTRACT: The authors investigated the intra- and intermolecular hydrogen bond in a number of compounds the molecules of which contain two hydroxyl groups. These compounds were chosen in such a manner as to have different hydroxyl groups. The spectra of infrared absorption were investigated of : a) glycols: ethylene glycol, 1,3-butylene glycol, 1,4-butylone glycol, and pinacone. b) catechols: hydroquinone, resorcin, and pyrocatechin. For the sake of comparison also the spectra of chloro-ethylene hydrin, of guajacole, of o- and m-nitrophenol and of benzoin were studied. In the spectra of pure substances a wide band is found in the range of the fundamental frequency and the first harmonic which corresponds to the oscillation of the O H group. This oscillation was excited

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because of the formation of the intermolecular hydrogen binding. It became evident that the form of these bands in the range of the fundamental frequency differs from that in the range of the first harmonic. In most substances this band in the range of the first harmonic exhibits a complicated structure with two sharply marked maxima. Its relative intensity differs with different compounds. Moreover, the relative intensity is dependent upon temperature. In the range of the fundamental frequency this band exhibits only one maximum at $\nu_2 \approx 3300$ cm^{-1} which corresponds to the long-wave maximum of the band of the first harmonic. Only in resorcin pyrocatechin and guaiacol this band exhibits two maxima. In the spectra of the diluted glycol-, pinacone-, and pyrocatechin solutions in CCl_4 two comparatively narrow absorption bands of the O-H group of the isolated molecules are observed in the range of the fundamental frequency and in that of the first harmonic. The existence of two oscillation bands of the O-H group

Investigations of the Hydrogen Bond in Glycols and Catechols SOV/48-22-9-25/40

indicates the presence of two configurations with a different mutual orientation of the hydroxyl groups in the molecules of these substances. The essential feature is that in the glycol group the disturbance of the C-H oscillations, contrary to all expectations, increases with increasing distance between the hydroxyl groups along the molecule chain. In catechols two bands are only found in the spectra of pyrocatechin solutions, whereas in the spectra of resorcin and of hydroquinone only one band is found. This indicates that the interaction of the hydroxyl groups, as was to be expected, takes place only in the ortho-position.

ASSOCIATION: Opticheskaya laboratoriya imeni G.S.Landsberga Fizicheskogo instituta im.P.N.Lebedeva Akademii nauk SSSR (Optical Laboratory imeni G.S.Landsberg at the Institute of Physics imeni P.N.Lebedev, AS USSR)

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MURZIN, V.A.

21(5),24(0) PHASE I BOOK EXPLOITATIO SOV

Akademiya nauk SSSR. Fizicheskiy institut

Issledovaniya po eksperimental'noy i teoreticheskoy fizike: [sbornik] (Studies on Experimental and Theoretical Physics; Collection of Articles) Moscow, Izd-vo AN SSSR, 1959. 304 p. Errata slip inserted. 2,300 copies printed.

Ed.: I. L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; Eds. of Publishing House: A. L. Chernyak and V. G. Berkgaut, Tech. Ed.: Yu. V. Rylina; Commission for Publishing the Collection in Memory of Grigoriya Samuilovich Landsberg: I. Ye. Tamm (Chairman), Academician; M. A. Leontovich, Academician; P. A. Bazhulin, Doctor of Physical and Mathematical Sciences; S. L. Mandel'shtam, Doctor of Physical and Mathematical Sciences; I. L. Fabelinskiy, Doctor of Physical and Mathematical Sciences; P. S. Landsberg-Baryshanskaya, Candidate of Physical and Mathematical Sciences; and O. P. Motulevich (Secretary), Candidate of Physical and Mathematical Sciences.

PURPOSE: This book is intended for physicists and researchers engaged in the study of electromagnetic radiations and their role in investigating the structure and composition of materials.

COVERAGE: The collection contains 30 articles which review investigations in spectroscopy, sonics, molecular optics, semiconductor physics, nuclear physics, and other branches of physics. The introductory chapter gives a biographical profile of G. S. Landsberg, Professor and Head of the Department of Optics of the Division of Physical Technology at Moscow University, and reviews his work in Rayleigh scattering, combat gases, spectral analysis of metals, etc. No personalities are mentioned. References accompany each article.

S/181/62/004/010/057/063
B102/B104

AUTHORS: Demeshina, A. I., and Murzin, V. N.

TITLE: Absorption and reflection spectra of $BaTiO_3$ in the far infrared

PERIODICAL: Fizika tverdogo tela, v. 4, no. 10, 1962, 2980 - 2982

TEXT: The seignettoelectrical properties of $BaTiO_3$-type crystals can best be studied by examining their vibrational spectra. The well-known bands at ν_1 = 545 and ν_2 = 400 cm^{-1} and the Raman bands at 695, 550, and 500 cm^{-1} attributed to vibrations of linked TiO_6 octaeders are of less interest than the ν_3 band of the Ba vibrations relatively to TiO_6 which are directly related to the seignettoelectric state. The position of ν_3 is suggested at ~225 cm^{-1} but has not yet been observed - except by Hadni et al. (Rev. Opt., 38, 463, 1959) who attributed a peak at 180 cm^{-1} to the ν_3-band sought. Here the authors measured the absorption and reflection spectra of $BaTiO_3$, $SrTiO_2$ and a 70:30 solid solution of $BaTiO_3$ + $SrTiO_3$

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between 670 and 15 cm^{-1}. Whereas the absorption spectra showed no clear indication of a band at about 200 cm^{-1}, the $BaTiO_3$ reflection spectrum shows a distinct ν_3-peak at 185 cm^{-1}. In this spectrum ν_2 was found at 313 cm^{-1}. There are 2 figures.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moskva
(Physics Institute imeni P. N. Lebedev AS USSR, Moscow)

SUBMITTED: May 28, 1962 (initially)
June 12, 1962 (after revision)

43495

S/051/62/013/006/010/027
E032/E314

AUTHORS: Murzin, V.N. and Demeshina, A.I.

TITLE: A spectrophotometer for the long-wavelength infrared region

PERIODICAL: Optika i spektroskopiya, v. 13, no. 6, 1962, 826 - 830

TEXT: A description is given of a vacuum spectrophotometer for the 40 - 1 200 μ range. The spectrophotometer was designed for solid-state studies at the physics laboratory of the Fizicheskiy institut im. P.N. Lebedeva AN SSSR (Physics Institute im. P.N. Lebedev, AS USSR) on the initiative of the late Professor G.I. Skanavi. The optical system of the device is illustrated in Fig. 1, in which И is the source, Э is the echelette, Б is the detector, M_{1-8} are mirrors, S_1 and S_2 are the entrance and exit slits of the monochromator. The echelette is demountable with constants equal to 1/12, 1/6, 1/2, 1.5, 2.5 mm and blazed at 12.5°. The mirrors M_6 and M_7 are spherical (35 cm in diameter, focal length 75 cm). The detector is a bismuth, low-inertia bolometer

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S/051/62/013/006/010/027
E032/E314

A spectrophotometer ....

with a quartz window and a working surface of 10 x 2.5 mm (threshold sensitivity 2 x 10^{-9} W, time constant 18 μs). The source of radiation is the ПРК-4 (PRK-4) mercury quartz lamp. Selective modulation of the light beam is carried out at 9 c.p.s. and the amplifier is similar to that described by M.N. Markov (ZhTF, 24, 1867, 1954), V.I. Malyshev, A.A. Shubin (and M.N. Markov (Izv. AN SSSR, ser. fizich., 17, 654, 1953). The spectrophotometer has been used to obtain the absorption spectrum of H_2O vapour, polyethylene and teflon and the reflection spectra of CsI and KRS-5. The resolution is such that the instrument will resolve bands with maxima separated by < 1.0 cm^{-1}. A complete set of filter combinations has been developed for the entire range and their characteristics are reported. It is pointed out that in carrying out quantitative measurements in the long-wave infrared region it is particularly important to consider the scattering of short-wave radiation into the working region of the instrument (particularly in the second and higher orders). Since this problem has not been extensively studied in the literature, special experiments were carried out to determine this effect quantitatively.

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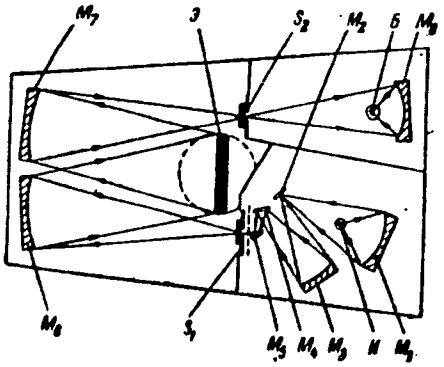
S/051/62/013/006/010/027
E032/E314

A spectrophotometer ....

There are 5 figures and 1 table.

SUBMITTED: August 29, 1961

Fig. 1:



Card 3/3

MURZIN, V.N.; DEMESHINA, A.I.

Temperature study of the infrared reflection spectra of $BaTiO_3$ and $SrTiO_3$ in the 2 - 1000 region. Fiz. tver. tela 5 no.8: 2359-2361 Ag '63. (MIRA 16:9)

1. Fizicheskiy institut im. P.N.Lebedeva AN SSSR, Moskva.
(Barium titanate) (Strontium titanate) (Spectrum, Infrared)

ACCESSION NR: AP4011755 S/0181/64/006/001/0182/0192

AUTHORS: Mursin, V. N.; Demeshina, A. I.

TITLE: Temperature investigations of vibration in polycrystalline $BaTiO_3$ and $SrTiO_3$ through a wide spectral range

SOURCE: Fizika tverdogo tela, v. 6, no. 1, 1964, 182-192

TOPIC TAGS: vibration spectrum, temperature dependence, barium titanate, strontium titanate, polycrystalline barium titanate, polycrystalline strontium titanate, spectral range, domain structure, domain boundary, permittivity, dielectric constant, lattice vibration, ferroelectric, semiconductor

ABSTRACT: The authors have studied the transmission and reflection spectra of $BaTiO_3$ and $SrTiO_3$ in the temperature interval 45-140C in the spectral range 2-1000 microns. Measurements on the shorter wave lengths (2-25 microns) were made on an IKS-14 infrared spectrometer; those in the range 20-1000 microns were made on a far-infrared spectrometer built in the laboratory of Semiconductor Physics of the FIAN. In addition to the known reflection band with a maximum at ~ 18

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microns, a wide plateu-like segment was observed for both substances at ~22 microns. It is not well defined. Both substances have maximums at ~30 microns; $SrTiO_3$ has one at ~80 microns, and $BaTiO_3$ has a weak one at ~55 microns. These indicate the development of high permittivity because of vibration of the crystal lattice. The measurements were treated mathematically, and the spectral behavior of the actual and imaginary parts of the permittivity was determined. Observed vibration of the crystal lattice of these substances has been interpreted according to the theoretical views relative to the vibration spectrum of the perovskite crystal lattice, on the basis of group theory. Anomalous measurements of low-frequency vibration at temperatures near the phase transition are considered on the basis of recent microscopic theories of ferroelectrics. The temperature relations of the dielectric constant for the most interesting parts of the spectrum are shown in Fig. 1 on the Enclosure. It is clear that in the region $\lambda > 1$ cm a basic change occurs in the dielectric constant for $BaTiO_3$ because of rearrangement of domains and displacement of domain boundaries. In the region $\lambda < 1$ cm, the temperature changes in the dielectric constant are due to deformation of the crystal lattice and to corresponding changes in the vibration spectrum. "In conclusion, we take this opportunity to express our sincere thanks to S. V.

ACCESSION NR: AP4011755

Bogdanov for his valuable advice and his constant interest in the work." Orig. art. has: 7 figures, 3 tables, and 6 formulas.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physical Institute AN SSSR)

SUBMITTED: 22Jul63	DATE ACQ: 14Feb64	ENCL: 01
SUB CODE: PH	NO REF SOV: 013	OTHER: 015

Card 3/4

ACCESSION NR: AP4030646 S/0048/64/028/004/0695/0702

AUTHOR: Murzin, V.N.; Demeshina, A.I.

TITLE: Temperature investigation of the dielectric dispersion of polycrystalline barium titanate and strontium titanate in a wide spectral range /Report, Symposium on Ferromagnetism and Ferroelectricity held in Leningrad 30 May to 5 June 1963/

SOURCE: AN SSSR. Izv. Ser.fiz., v.28, no.4, 1964, 695-702

TOPIC TAGS: ferroelectricity, dielectric dispersion, barium titanate, strontium titanate, barium titanate dielectric dispersion, strontium titanate dielectric dispersion, perovskite lattice normal mode

ABSTRACT: The authors have measured the dielectric constant of barium titanate and strontium titanate over the spectral range from audio frequencies to the near infrared (V.N.Murzin and A.I.Demeshina, Fizika tverdogo tela,4,2980,1962; Ibid.,5,2339, 1963; Optika i spektroskopiya,13,826,1962). They have also employed group theory methods to calculate the normal modes of the perovskite lattice in both the cubic and the tetragonal states. The secular equations for the perovskite vibrations are given in the present paper, and the dielectric constant measurements are discussed. The

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ACCESSION NR: AP4030646

dielectric constant was measured at audio and radio frequencies with a bridge or a Q meter. The infrared measurements (2 to 1000 microns) were performed with two spectrometers, of which that used at the longer wavelengths was of special construction and is described in one of the references cited above. Both absorption and reflection spectra were obtained. The real and imaginary parts of the dielectric constant were calculated from the spectroscopic data with the aid of the dispersion relation, and the results are presented graphically. In addition to the known absorption band at about 18 microns, a broad absorptinn band was found at lower frequencies in both barium and strontium titanate. This low frequency absorption peaked at 105 microns in strontium titanate and at 290 microns in barium titanate. The measurements of barium titanate were repeated at a number of temperatures above and below the Curie point. These measurements are discussed in terms of a microscopic theory of ferroelectricity (V.L.Ginzburg, Uspekhi fiz.nauk,38,490,1949; Fizika tverdogo tela,2,2031, 1960; W.Cochran, Advances Phys.,3,387,1960). The absorption at 290 microns is identified with the lattice vibrations to which, according to this theory, the ferroelectric properties are due. Barium titanate has two regions of strong dispersion. One dispersion region extends from 5×10^{11} to 10^{14} cycles/sec and is due to lattice vibrations; the other region of strong dispersion lies between 10^{9} and 5×10^{10} cycles/sec and is ascribed to domain wall motion. The lower frequency dispersion

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ACCESSION NR: AP4030646

region does not occur in strontium titanate, which has no domains. "In conclusion we take the occasion to express our deep gratitude to S.V.Bogdanov for his valuable advice and constant interest in the work." Orig.art.has: 8 formulas, 6 figures and 1 table.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: EM NR REF SOV: 012 OTHER: 013

Card 3/3

L 11846-65 EWT(l)/EWP(e)/EPA(s)-2/EWT(m)/EPF(n)-2/EPA(w)-2/EEC(t)/EWP(t)/EEC(b)-2/EWP(b)/EWA(h) Pab-10/Pt-10/Pu-4/Fl-4/Peb IJP(c)/ASD(a)-5/ASD(m)-3/AS(mp)-2/AFMD(t)/ESD(dp)/ESD(gs)/ ESD(t) GG/JD

ACCESSION NR: AP4048416 S/0181/64/006/011/3372/3377

AUTHORS: Murzin, V. N.; Bogdanov, S. V.; Demeshina, A. I.

TITLE: Dispersion relation and some microscopic characteristics of barium titanate

SOURCE: Fizika tverdogo tela, v. 6, no. 11, 1964, 3372-3377

TOPIC TAGS: barium titanate, dispersion relation, electron polarization, polarizability, dielectric constant

ABSTRACT: The method of W. Cochran (Adv. Phys. v. 8, 387, 1960) is used to analyze the experimental results obtained for $BaTiO_3$ and to derive in explicit form a dispersion relation for the complex dielectric constant of substances with crystal structure of the perovskite type in the cubic state. Allowance is made for the fact that in such crystals the polarization has a complex character, due to the presence of strong local electric fields and to the large

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L 14846-65
ACCESSION NR: AP4048416

2

contribution of the electron polarization. In the case of barium titanate, comparison of the calculations with experiment yields estimates for the ion displacements, the total polarizability per unit crystal cell and its ionic components, the values of the local electric fields, and the ion polarizabilities of the atoms. The calculation shows that 65--80% of the total polarization of the crystal is due to electron polarization. "We thank D. G. Sannikov for a discussion of the results of this work." Orig. art. has: 15 formulas and 3 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR (Physics Institute, AN SSSR)

SUBMITTED: 03Dec64 ENCL: 00

SUB CODE: SS NR REF SOV: 007 OTHER: 005

Card 2/2

L 17125-65 EEC(b)-2/EPF(n)-2/EPA(s)-2/EPA(w)-2/EWA(h)/EWT(1)/EWT(m)/EEC(t)/EWP(b)/EWP(e) P1-4/Pt-10/Pu-4/Peb-10/Peb AS(mp)-2/ASD(a)/ASD(a)-5/AFMD(t)/ASD(m)-3/ESD(dp)/ESD(c)/ESD(ge)/ESD(t)/IJP(c) GG/WH

ACCESSION NR: AP5000655 S/0181/64/006/012/3585/3593

AUTHOR: Murzin, V. N.; Bogdanov, S. V.; Demeshina, A. I.

TITLE: Transmission and reflection spectra of several titanates in a broad infrared region

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3585-3593

TOPIC TAGS: titanate, transmission spectrum, reflection spectrum, ir spectrum, dielectric constant / SVT-227, SVT-802

ABSTRACT: The transmission and reflection spectra of $CaTiO_3$, SVT-227, SVT-802 (solid solutions based on $SrTiO_3$ to which 9.6 and 19.6 mol.% Bi is added), $MgTiO_3$, Zn_2TiO_4, $Bi_{2/3}TiO_3$, and barium tetratitanate were measured in the spectral interval 2 -- 1,000μ and in the submillimeter band. The samples were prepared in accordance with the usual ceramic technology. The submillimeter band (2 -- 8 mm) was generated by a klystron. The results have shown that high-frequency normal oscillations are produced in these substances essentially as a result of internal oscillations of the TiO_6 octahedra, while the low-frequency oscillation is connected with the relative dis-

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L 17125-65
ACCESSION NR: AP5000655

placement of the Ti and Ba atoms. In all the compounds (except $BaTiO_3$, SVT-802 and SVT-227) the dielectric constant does not depend on the frequency in the range from radio-frequencies up to 500 -- 5,000 Gc (the region of infrared resonance). The dielectric constant in this range is therefore due to the oscillations of the crystal-lattice ions. In the case of the polycrystalline $BaTiO_3$ and SVT compounds, a dispersion was observed also at lower frequencies, ~ 10^9 cps. The dielectric losses of the polycrystalline $SrTiO_3$, $CaTiO_3$, $MgTiO_3$, $ZnTiO_4$, barium tetratitanate, and $Bi_{2/3}TiO_3$ at microwave frequencies are also completely due to the resonant mechanism connected with the oscillation of their crystal lattices. Orig. art. has: 5 figures, 1 formula and 2 tables.

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva AN SSSR, Moscow (Physics Institute AN SSSR)

SUBMITTED: 03Dec63 ENCL: 00

SUB CODE: OP, IC NR REF SOV: 006 OTHER: 004

Card 2/2

L 57026-65 EWT(1)/EPA(s)-2/EEC(t)/T/EEC(b)-2 Pt-7/Pi-4/Pl-4 IJP(c) GG

ACCESSION NR: AP5016120 UR/0048/65/029/006/0920/0924

AUTHOR: Murzin, V.N.; Demeshina, A.I.; Bogdanov, S.V. 55 B

TITLE: Vibrational spectra of strontium, barium and calcium titanates /Report, 4th All-Union Conference on Ferroelectricity held in Rostov-on-the-Don 12-18 Sept. 1964/

SOURCE: AN SSSR. Izvestiya. Ser.fizicheskaya,v.29,no.6,1965,920-924

TOPIC TAGS: ferroelectric crystal, barium titanate, calcium inorganic compound, strontium titanate, absorption spectrum, dielectric constant, perovskite structure

ABSTRACT: The infrared transmission and reflection spectra of $CaTiO_3$ were recorded and are compared with the analogous spectra of $SrTiO_3$ and $BaTiO_3$ reported earlier by the authors and by others. The comparison is of interest because all three materials have the perovskite structure but with different symmetries at room temperature. The $CaTiO_3$ transmission spectrum has a doublet with the minimum near 30 microns, and the reflection spectrum has sharper minima than those of

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ACCESSION NR: AP5016120

$SrTiO_3$ and $BaTiO_3$. The dielectric constant of $CaTiO_3$ was calculated by the numerical integration method described previously by two of the authors (Fiz.tverdogo tela 6,182,1964). It was found that the degeneracy is partly removed in $CaTiO_3$ and seven resonances were found between 17.9 and 87 microns. The dielectric constants of all three materials were measured at frequencies from 10^3 to 3×10^{14} cycle/sec. The dielectric constants of $SrTiO_3$ and $CaTiO_3$ remained unchanged to about 10^{12} cycle/sec and were determined entirely by lattice vibrations. Additional dielectric dispersion was observed in $BaTiO_3$ near 10^{10} cycle/sec; this is ascribed to domain wall relaxation. The contributions of infrared resonance absorption to the dielectric losses of the three materials were calculated. The dielectric losses of $SrTiO_3$ and $CaTiO_3$ near 10^{10} cycle/sec are due entirely to lattice vibrations. The dispersion equation for the complex dielectric constant of a cubic crystal with the perovskite structure was derived by the method of W.Cochran (Adv.Phys.9,387,1960) in an attempt to elucidate the anomalously high oscillator strength of the low frequency normal vibration. It is concluded that the high oscillator strength is due

Card 2/3

L 57026-65

ACCESSION NR: AP5016120

to induced polarization of the electron shells of the Ti and O ions. Orig.art.has: 6 formulas, 5 figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: SS,IC

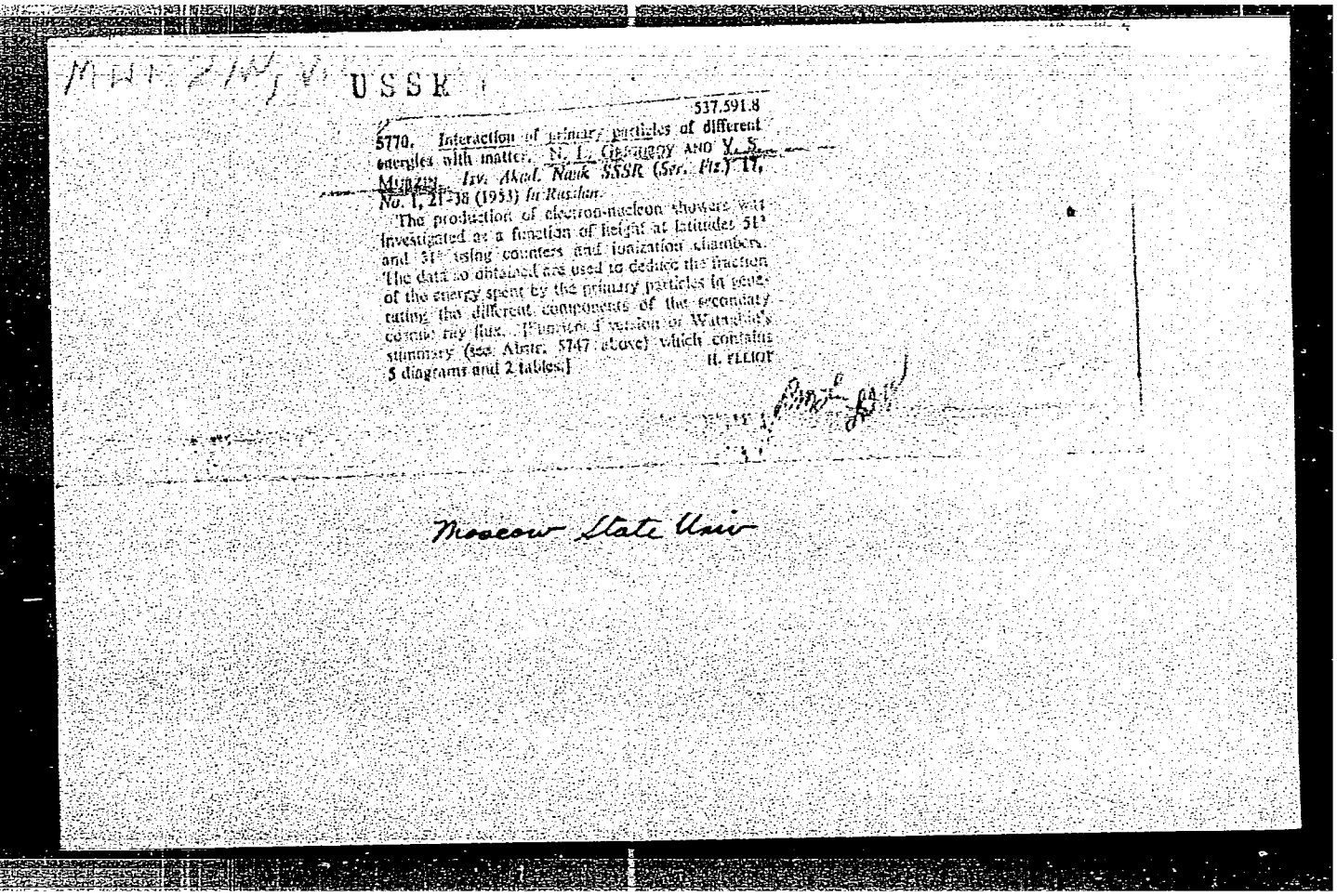
NR REF SOV: 004 OTHER: 005

Card 3/3

KURZIN, V. S.

Dissertation: "Interaction of Cosmic Protons of Various Energies With Matter (Generation of Strongly Ionizing Particles)." Cand Phys Math Sci, Moscow State U, Moscow, 1953.
(Referativnyy Zhurnal--Fizika, Moscow, Jun 54)

SO: SUM 318, 23 Dec 1954



USSR

537.591.8

5770. Interaction of primary particles of different energies with matter. N. L. Grigorov and V. S. Murzin. *Izv. Akad. Nauk SSSR (Ser. Fiz.)* 17, No. 1, 21-38 (1953) *In Russian*

The production of electron-nucleon showers was investigated as a function of height at latitudes 51° and 31° using counters and ionization chambers. The data so obtained are used to deduce the fraction of the energy spent by the primary particles in generating the different components of the secondary cosmic ray flux. [Translation of version of Watanabe's summary (see Abstr. 5747 above) which contains 5 diagrams and 2 tables.] H. Elliot

Moscow State Univ

MURZIN, V.S.

5276
LATITUDINAL EFFECT OF NUCLEAR FISSION IN THE STRATOSPHERE. V. S. Murzin (Moscow State Univ. im. M. V. Lomonosov, Russia). Doklady Akad. Nauk S.S.S.R. 94, 443-6(1954) Jan. 21. (In Russian)
The latitudinal effects of small ionization collisions in the stratosphere was studied at 51, 38, 31, and 0° N and at heights of 33 to 27 km. The results are graphed and tabulated. (J.S.R.)

3-1-55 RM

SUBJECT USSR / PHYSICS

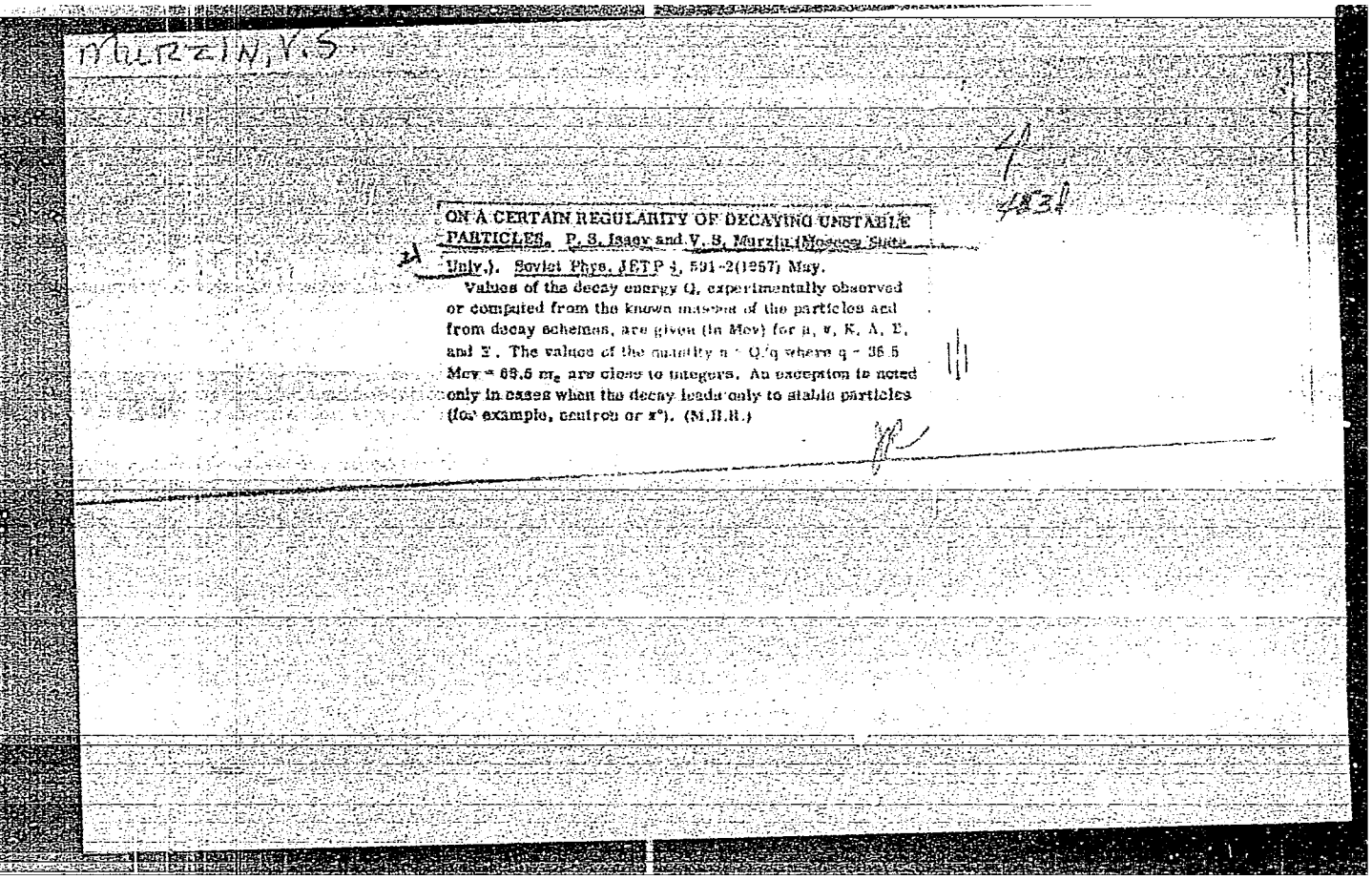
AUTHOR ISAEV, P.S., MURZIN, V.S.

TITLE On a Rule observed on the Occasion of the Decay of Unstable Particles.

PERIODICAL Žurn.eksp.i teor.fis, 31, fasc.4, 715-715 (1956)
Issued: 1 / 1957

At present the following values of the masses of stable and unstable particles (the existence of which has been rigorously proved) are unanimously recognized (in electron masses): $m_\nu = m_\gamma = 0$; $m_e = 1$; $m_\mu = 207$; $m_\pi = 274$; $m_K = 966 \pm 3$; $m_p = 1836$; $m_\Lambda = 2181 \pm 1$; $m_\Sigma = 2327 \pm 3$; $m_\Xi = 2585 \pm 15$. Among these particles μ, π, K, Λ, Σ and Ξ are unstable. The values of decay energies which can be experimentally observed or are computed on the basis of known masses of particles by means of the decay scheme are given below (in MeV):

Decay process:	Q	n	Decay process:	Q	n
$\pi^0 \rightarrow 2\gamma$	135	3,8	$K \rightarrow \mu + \nu$	~389	11,0
$\mu \rightarrow e + 2\nu$	106	3,0	$K \rightarrow \mu + \pi^0 + \nu$	~248	7,0
$\pi \rightarrow \mu + \nu$	34,5	1,0	$\Lambda^0 \rightarrow p + \pi^-$	37,0±1,0	1,0
$K \rightarrow 3\pi$	75,0±1,5	2,1	$\Sigma \rightarrow n + \pi$	111,0±3	3,1
$K \rightarrow 2\pi$	214 ± 5	6,0	$\Xi \rightarrow \Lambda^0 + \pi$	66 ± 6	1,9



MURZIN, Y.S.

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ON A CERTAIN REGULARITY OF DECAYING UNSTABLE PARTICLES. P. S. Isaev and V. S. Murzin (Moscow State Univ.). Soviet Phys. JETP 4, 591-2(1957) May.

Values of the decay energy Q, experimentally observed or computed from the known masses of the particles and from decay schemes, are given (in Mev) for π, ν, K, Λ, Σ, and Σ. The value of the quantity n = Q/q where q = 36.5 Mev = 68.6 m_e are close to integers. An exception is noted only in cases when the decay leads only to stable particles (for example, neutron or π°). (M.H.R.)

SOV/120-58-6-25/32

AUTHORS: Grigorov, N. L., Rapoport, I. D., ~~Murzin, V. S.~~, Savin, F.D.

TITLE: A Registering Device for the Amplitude Recording of 49 Pulses of a Large Dynamic Range (Registrator dlya amplitudnoy zapisi 49 impul'sov s bol'shim dinamicheskim diapazonom)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 6, pp 109-110, (USSR)

ABSTRACT: The instrument is used for the recording of pulses whose duration is longer than 3×10^{-5} sec. It consists of 49 miniature oscillographic tubes, type 8L029, the screens of which can be photographed onto a single frame. The tubes occupy a square area, having dimensions of 64 x 64 cm. The circuit of a tube is as shown in the figure on p 110. It is seen that, apart from the voltage supplies, the circuit contains an amplifying stage; this has a gain of 38 and gives a

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A Registering Device for the Amplitude Recording of 49 Pulses of a Large Dynamic Range

rise time of 30-40 μ sec. The paper contains 1 figure and 1 Soviet reference.

ASSOCIATION: Nauchno-issledovatel'skiy institut yadernoy fiziki MGU (Scientific Research Institute for Nuclear Physics of the Moscow State University)

SUBMITTED: December 23, 1957.

MURZIN V. S.

AUTHORS: Grigorov, N. L., Murzin, V. S., Rapoport, I. D. 56-2-33/51

TITLE: A Method for the Measurement of the Energy of Particles In a Range Above 10^{11} eV (Metod izmereniya energii chastits v oblasti vyshe 10^{11} eV)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol 34, Nr 2, pp 506-507 (USSR)

ABSTRACT: More than 2 years ago Grigorov suggested a method for the determination of the energy of a single nuclear-active particle. This method is based on the measurement of the total energy emission in a dense medium by all secondary particles which had been formed on the passage of the primary particle through a thick layer of substance. A formula for the energy E_0 of the primary particle is given. The authors carried out experiments with a specially designed apparatus at altitude of 3860 m above sea level. The present work gives a short description of this apparatus. It consists of a step-pyramid of a height of 170 cm the upper cross section of which is about 0,6 m^2 and the lower cross section about 0,8 m^2 . In this pyramid there are 8 iron layers of a total

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A Method for the Measurement of the Energy of Particles In a Range Above 10^{11} eV

56-2-33/51

thickness of 85 cm. In the selection of the absorbent a compromise between the following demands must be found: a) The range of the electron-photon avalanche must be greater than the range of nuclear reaction. b) The material of the absorbent must be sufficiently dense. For the measurement of the ionization cylindrical impulse ionization chambers of iron or brass with walls 1 mm thick are used in this apparatus. These chambers are filled with pure argon at a pressure of up to 5,5 at. excess pressure. The ionization chambers are mounted in 6 series between the iron layers of the apparatus. Altogether the apparatus contains 105 chambers. 3 chambers each are connected to an amplifier. The electric impulses forming the ionization chambers are registered by photographing the screens of all tubes. Besides the ionization chambers the apparatus contains a telescope consisting of counters as well as several casings with hodoscopic counters. The control of the apparatus is shortly described. The minimum ionization still registered corresponds to the simultaneous passage of 5-10 relativistic particles through the chamber. Several examples of registered cases are shown in a diagram. An exact description

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of the results obtained with this apparatus will be published later. There are 2 figures.

ASSOCIATION: Moscow State University (Moskovskiy gosudarstvennyy universitet)

SUBMITTED: October 25, 1957

AVAILABLE: Library of Congress

1. Particles-Energy-Measurement

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MURZIN, V. S.

STUDY OF INTERACTION PROCESSES OF $10^{11}-10^{12}$ ev PARTICLES WITH IRON AND GRAPHITE NUCLEI

Kh. P. Babayan, N. L. Grigorov, M. M. Dubrovin,
V. S. Murzin, V. A. Sobinyakov, and I. D. Rapoport

1. The use of the "ionization calorimeter" which comprises a large number of ionization chambers made it possible to investigate the interaction of particles of known energy.

2. Studies carried out in 1957 at 3860 m above sea level and in 1958-59 at 3200 m above sea level have produced results that are in good agreement. From these results, the following conclusions may be drawn:

a) when interacting with Fe nuclei, $10^{11}-10^{12}$ ev particles lose, as a rule, nearly all their energy in the production of mesons:

b) there is a large probability that as a result of collision with a nucleus there are produced a small number of particles, the total energy of which amounts to $\sim$50% of the energy of the primary particle (in the majority of cases these particles are not nucleons):

c) big fluctuations are observed in energy transfer to π^0-mesons.

Report presented at the International Cosmic Ray Conference, Moscow, 6-11 July 1959.

21(7) SOV/56-36-4-16/70

AUTHORS: Grigorov, N. L., Murzin, V. S., Rapoport, I. D.

TITLE: Investigation of the Interaction of Particles With Energies of 10^{11} - 10^{12}ev With Iron Nuclei (Izucheniye vzaimodeystviya chastits s energiyey 10^{11} - 10^{12}eV s yadrami zheleza)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36, Nr 4, pp 1068-1079 (USSR)

ABSTRACT: The present detailed paper consists of 7 sections. Section 1 in its introduction discusses the problem and the measuring method. The energy of a primary particle E_0 is determined according to a new method from the ion pair production energy ε and the ionization $I(x)dx$ generated in an absorber layer of the thickness dx g/cm^2 in the depth x g/cm^2, if x_0 is the total thickness of the absorber. It holds that $E_0 = \varepsilon \int_0^{x_0} I(x)dx$. The principle of the device used has already been described by reference 2. Energy determination was carried out by calorimetric measurements, and therefore the device is described as "ioni-

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Investigation of the Interaction of Particles With Energies of $10^{11} - 10^{12}$ ev With Iron Nuclei

zation calorimeter". Measurements were carried out at an altitude of 3860 m above sea level. Section 2 of the paper describes the apparatus. The ionization calorimeter consists essentially of a large block of 7 iron layers of various thicknesses, between which 6 rows of pulse ionization chambers were arranged. Batches of 3 of these chambers were connected in parallel and formed an ionization detector; each detector was connected with a pulse amplifier. The device contains a total of 105 ionization chambers which formed 35 independent ionization detectors. Figure 1 is a schematical representation of the device. Section 3 deals with the evaluation of measuring results. It is discussed in short how the ionization chamber pulses are photographed by means of a multi-channel oscillograph on a cinematographic film. Each film is radiotechnically gauged. The pulse amplitudes and ionization are determined and diagrams similar to that of figure 2 are made. They serve the purpose of determining the angle of incidence of the "primary" particles. In section 4 measuring results are discussed, which are given in detail by a table. The table [illegible]

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Investigation of the Interaction of Particles With Energies of $10^{11} - 10^{12}$ ev With Iron Nuclei

tains data concerning particle energy $(0.5 \div 46).10^{11}$ ev, the angles of incidence ($0 \div 25^{\circ}$ to the vertical), the place of the first interaction of primary particles ($0 \div 300$ g/cm^2), the number of particles in the first maximum ($40 \div 18000$) and in the second maximum (up to 1500), and, finally, the number of accompanying electrons (between 1 and ~30). A total of 110 cases was analyzed in which, behind 2 arbitrary rows of chambers, more than 250 relativistic particles occurred. Section 5 discusses results. Figure 3 shows an example of a nuclear cascade curve in form of a diagram in which the number of electrons is plotted to the absorber thickness. Figure 4 shows the dependence of the absorber layer thickness on the number of interactions. For the interaction range a value of $L = 92^{+20}_{-12}$ g/cm^2 was calculated which is a near approach to the value corresponding to a geometrical nuclear cross section of $r_o = 1.4.10^{-13}$ cm ($L_{geom} = 105$ g/cm^2). Investigation of the average inelasticity $\bar{\alpha}$ in the interaction of nuclear-active particles of 10^{11}-10^{12} ev

Investigation of the Interaction of Particles With Energies of $10^{11} - 10^{12}$ ev With Iron Nuclei

was carried out by an analysis of the curves of the average ionization $\bar{I}(x)$ in Fe in the case of a given E_0. The theoretical considerations necessary for determining $\bar{\alpha}$ are given. $\bar{\alpha}$ is between 0.75 and 1. In section 6 the fluctuations of the energy part transferable by neutral pions are investigated (Fig 6). The mean energy transmitted by π^0-mesons is given as amounting to $\sim 0.4 \pm 0.1$ of primary particle energy. Section 7 finally deals with the results obtained by determining the energy flux absorption of nuclear active particle energy at great iron layer thicknesses. Determination was carried out by means of the ionization curve. The energy flux decrease of this component developed very slowly with increasing depth; for the absorption range $L_{abs} = 240$ g/cm^2 is given, and a correction made in consideration of neutrons even gives a value of 270 g/cm^2. The authors finally thank V. S. Kaftanov, Yu. G. Yel'kin and V. I. Lobodenko for their collaboration. There are 7 figures, 1 table, and 6 references, 4 of which are Soviet.

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Investigation of the Interaction of Particles With Energies of 10^{11} - 10^{12} ev With Iron Nuclei

ASSOCIATION: Institut yadernoy fiziki Moskovskogo gosudarstvennogo universiteta (Institute of Nuclear Physics of Moscow State University)

SUBMITTED: November 4, 1958

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